

**Table 1.** Published Black Francolin records in Bangladesh (1882–2009).

Year	Number and location	District/division	Observer/reference
1882	Number not recorded	Dhaka	Simson (1882)
1888	Number not recorded	Sylhet	Hume (1888)
1972	Savar area, one killed by local hunter, specimen preserved at Dhaka University Zoology Department	Dhaka	Khan (1987)
1988	Number not recorded, Tentulia	Panchagarh, Rangpur division	Khan (1987)
1999	One; Modhupur National Park	Dhaka	Enam Ul Haque in Thompson & Johnson (2003)
2006	One; Sangu Valley	Bandarban district, Chittagong Hill Tracts	R. Halder in Thompson <i>et al.</i> (2014)
2009	10; Kazipara, Tentulia	Panchagarh, Rangpur division	Chowdhury (2011)

**Table 2.** Black Francolin records at Kazipula, Tentulia during seven field visits between October 2009 and May 2013.

Period	Date	Calling (male) <sup>a</sup>	Directly visible	Nests	Total male	Total female
Non-breeding	1–3 October 2009		5 males + 1 female		5	1
	8 January 2010		2 pairs		2	2
	7–8 October 2011		1 pair + 1 male		2	1
Breeding	20–22 April 2012	15	3 pairs + 9 males	1 abandoned nest with 4 eggs	15+12=27	3
	4–6 May 2012	35	11 pairs + 6 male		35+17=52	11
	25–26 May 2012	6	8 male + 1 female	1 active nest with 5 eggs	6+8=14	1
	23–5 May 2013	13	8 male + 1 female		13+8=21	1

<sup>a</sup> Male call is the most reliable indicator for population estimation during the breeding period.

this species there. In 2013, during the breeding season, I used my own resources to place 1,000 posters on houses, schools and other institute walls in Kazipara and Shariel villages and the nearby market areas, in order to make local people aware of the need to conserve these birds. The recovery of the population will need a strong programme of activities to preserve and perhaps extend an appropriate matrix of habitats and to eliminate the hunting of the species through awareness campaigns, legal enforcement and, if necessary, the development of alternative sources of protein.

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## Range expansion of Lemon-bellied White-eye *Zosterops chloris* and Sooty-headed Bulbul *Pycnonotus aurigaster* to south-east Sulawesi, Indonesia

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### Introduction

This note makes use of specimen collections and observations to document the spread of Lemon-bellied White-eye *Zosterops chloris*, a well-established native in other parts of mainland Sulawesi, to the south-east peninsula and the spread of the introduced Sooty-headed Bulbul *Pycnonotus aurigaster* in the same area. In January 2007 a team from Indonesia Museum Zoologicum Bogoriense (MZB) surveyed the avifauna of Block Debbie, an area of woodland replanted from 2002 and managed by a nickel mining company following its mining operations near Saroako (Sorowako), South Sulawesi province. Located in the north of the south-east peninsula, Block Debbie is classified as 'regeneration forest' and succession to

secondary forest is taking place. Subsequently, between 2009 and 2011, personnel from MZB and the University of California, Davis Museum of Wildlife and Fish Biology (MWFB), undertook a series of collaborative research expeditions further south in South-East Sulawesi province, with the primary objective to survey and document biodiversity in the Masembo river drainage, Mekongga mountains, North Kolaka district, South-East Sulawesi. In 2011 four areas were surveyed: the Mangolo river near Mangolo, Kolaka district; two separate areas of Rawa Aopa Watumohai National Park (Rawa Aopa): Morowali district in the north and South Konawe district in the south; and Haluoleo University campus in Kendari on the south-east coast. At these sites, mist-nets and air guns (guns

were not used at the university) were used to collect birds, point counts were conducted and incidental observations made. Incidental observations were also made when travelling between sites.

### Lemon-bellied White-eye *Zosterops chloris*

The Lemon-bellied White-eye is a widely distributed Indonesian endemic, generally common where it occurs—its core distribution is mainland Sulawesi and the Lesser Sundas; and to the west in the Java Sea and east in the Banda Sea it is distributed sporadically, being found predominantly on small islands and islets and often absent from even medium-sized islands (Coates & Bishop 1997, van Balen 2008). Lemon-bellied White-eye is a polytypic species (van Balen 2008), with two races recognised on Sulawesi—*Z. c. mentoris* in north-central Sulawesi (the racial identity of birds in north-east Sulawesi is unclear), and *Z. c. intermedius* in south and east Sulawesi and the islands of Muna and Buton off the south-east peninsula (the racial identity of birds from Kabean island to the west of Muna is unclear). A third race, *Z. c. flavissimus*, is found on the Tukangbesi archipelago lying south-east of Buton; this might also be the origin of birds found on the south-east peninsula. The species is listed for Rawa Aopa by Suratin (2010) and was found by Kelly *et al.* (2010) in August 2007 at Rumburumba on the tip of the south-east peninsula (4.417°S 122.800°E), but it appears previously unrecorded from the south-east. It is reported that in 1995 and 1996 the species was not seen in the Kendari area by a series of observers during lay-overs between surveys on Buton where the species was common (B. R. Sykes *in litt.* 2014). In 2009 AE saw two Lemon-bellied White-eyes, one on 1 August near Wesalo village, Lalolae subdistrict, Kolaka district (4.027°S 121.786°E), and one on 6 August in mountains east of Kolaka at about 260 m (4.047°S 121.727°E) in a mixed flock with Scarlet Myzomela *Myzomela dibapha*, Yellow-sided Flowerpecker *Dicaeum aureolimbatum* and sunbirds.

During the 2011 surveys at Haluoleo University and Rawa Aopa, nine Lemon-bellied White-eye specimens were collected, two (MWFB 10060 & 10061) on the Haluoleo University campus (4.014°S 122.521°E) and seven from three sites in the southern part of Rawa Aopa (MZB 32930, 32938, 32940, 32946 & 32947; MWFB 10256 & 10532). Two sites were at mangrove forest edge (4.494°S 122.085°E & 04.494°S 122.083°E) and one at the edge of mixed broadleaf riparian forest (4.459°S 122.123°E). The various sites where the species has been seen in South-East Sulawesi province are already widely scattered and it seems likely that Lemon-bellied White-eye may well occur at additional locations there.

A series of *mentoris*, *intermedius* and *flavissimus* specimens from MZB and AMNH were examined and it was found that the nine *Z. chloris* specimens collected best matched *Z. c. mentoris* based on dorsal colouration, and they have provisionally been assigned to this race; further study is in progress. Birds seen by Kelly *et al.* (2010) may belong to the same set of populations, but in the absence of specimens no claim can be made. However, we note that near Rumburumba the width of the channel between the south-east peninsula and Buton is only about 5 km and the sea crossings, if birds were to cross from Muna to the mainland using the Toba islands as stepping stones, are even shorter.

### Sooty-headed Bulbul *Pycnonotus aurigaster*

The Sooty-headed Bulbul is a fairly common to common species widely distributed in South-East Asia, native to south and south-east China, Myanmar, Thailand, Cambodia, Laos, Vietnam, Java and Bali; introduced populations are established on Sulawesi, Sumatra and Singapore (Fishpool & Tobias 2005). Birds of the Javanese nominate race were collected by Heinrich in 1930 around Makassar, South Sulawesi province (White & Bruce 1986); subsequently this population appears to have spread at least as far as Enrekang on the south peninsula, some 160 km to the north (Coates & Bishop

1997). The species has recently been widely reported on the north-east peninsula of Sulawesi and appears to have been established as long ago as 1990 in Manado (Fitzsimons *et al.* 2011).

In January 2007 MZB obtained three Sooty-headed Bulbul specimens (two males and a female, MZB 31042–31044) from Block Debbie, Saroako town (2.589°S 121.402°E). Abubakar (2009) has reported subsequent sightings in the same area. Between 2009 and 2011 during the Mekongga mountains biodiversity surveys, two specimens of Sooty-headed Bulbul were taken. A male (WFB 10533) was collected 18 December 2009 by HA, east of Tinukari village (3.637°S 121.078°E), in an orchard surrounded by secondary lowland forest at 200 m. A second adult male (WFB 10088), was collected on 30 June 2010 by Mas Fieldan at 419 m (3.642°S 121.095°E), in an orchard surrounded by secondary hill forest in the western foothills. A third specimen, a young female (WFB 10235), was collected by Jolee Faisal on 23 November, 2011 at a garden plot in Mangolo village at 100 m (3.984°S 121.567°E).

In July 2004, DDP found Sooty-headed Bulbul near Mokaleleo village, Puriala, Konawe district in north Rawa Aopa, at two locations (4.106°S 122.073°E & 4.102°S 122.076°E). In 2009 AE made four observations: on 1 August, one was perched on a powerline along Muhammad Yamin road near the Sampara river crossing, about 12 km east of Kendari (3.982°S 122.398°E), and on the same day a second was on the verge of the Kolaka–Raterate road near Wesalo village, Lalolae subdistrict, Kolaka (4.027°S 121.785°E). On 2 August one was seen in Tinukari village (3.654°S 121.051°E) and on 6 August one was in Kolaka city (4.049°S 121.590°E). On 26 November 2011 JAT recorded this species in south Rawa Aopa at the edge of riparian forest and savannah habitats on the outskirts of Lanowulu village, Tinanggea (4.459°S 122.123°E). Sooty-headed Bulbul is not listed in Suratin (2010).

The Sooty-headed Bulbul appears to have extended its range in southern Sulawesi into the south-east peninsula. Populations are evident from Saroako southward through the western foothills of the Mekongga mountains to Kolaka, south to Rawa Aopa and east to Kendari, and it seems probable that the species has continued to spread from the original Makassar site. Based on Fitzsimons *et al.* (2011) and these new data, it may be expected to spread more widely on the island and indeed it has been found at several other widely separated sites (DDP pers. obs.).

### Conclusions

Five million ha of forest were destroyed in Sulawesi between 2000 and 2010 (Miettinen *et al.* 2011), reducing populations of forest-dependent organisms but creating opportunities for other species. Both Lemon-bellied White-eye and Sooty-headed Bulbul can thrive in a variety of the habitats that replace harvested primary forest—secondary forest, open woodland, scrub, cultivation, village and urban gardens (Coates & Bishop 1997). These species, and others with similar habitat preference/tolerance, able to take advantage of change, benefit from the new availability of suitable anthropogenic landscapes.

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# Diet and foraging behaviour of Purple Cochoa *Cochoa purpurea* in Namdapha National Park, India

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## Introduction

The Purple Cochoa *Cochoa purpurea* is a scarce and secretive species found throughout the mid- to high-altitude broadleaved forests of the Himalaya, north-east India, China and South-East Asia (Robson 2008). The species is sluggish and often remains motionless in the canopy making it very difficult to see, particularly outside the breeding season when it is not vocal (C. Robson *in litt.*). Although the nest and eggs have been described (Whympers 1902), the diet and foraging behaviour of the species is poorly known. There are only two published records describing the diet of Purple Cochoa (from the gut contents of dead birds) (Baker 1924, D'Abreu 1931) and none documenting their foraging behaviour. They are thought to be facultative frugivores which feed on fruits and berries (species unknown), insects and molluscs (Baker 1924, D'Abreu 1931, Robson 2008, Rasmussen & Anderton 2012). They have been seen in *Ficus* trees, which possibly indicates that they feed on figs. No other fruits in their diet are known. Their role as seed dispersal agents has never been studied.

Purple Cochoas are thought to be nomadic, ranging widely in search of food, and are potentially altitudinal migrants in some parts of their range, but might be resident at certain altitudes in other parts (C. Robson *in litt.*). They have been recorded at altitudes ranging from 1,000–2,135 m in South-East Asia, although as low as 400 m in Cuc Phuong National Park, Vietnam (where the maximum elevation is 659 m) (Robson 2008), and 915–3,000 m in South Asia where they are thought to be mainly summer visitors, possibly influenced by the predominance of summer records (Rasmussen & Anderton 2012). However, at least two published articles report their presence in Mizoram and Arunachal Pradesh during winter and spring (Sangha 2001, Srinivasan *et al.* 2010), and at least one bird has been seen by birdwatchers in Nagaland on 6 January 2010 (S. Dalvi verbally). Because it is such a poorly known species, it is easy to make assumptions about its altitudinal limits and seasonal status.

## Study area

Namdapha National Park (hereafter Namdapha) lies in Changlang district, eastern Arunachal Pradesh, India (27.392–27.661°N 96.251–

96.976°E). It has an altitudinal range of 200–4,571 m and covers an area of 1,985 km<sup>2</sup>. The east and south-east boundaries of Namdapha border northern Myanmar. It has a very high diversity of avian species and has been designated an Important Bird Area together with Kamlang Wildlife Sanctuary to the north (Islam & Rahmani 2004). All our observations of Purple Cochoa were on Hornbill Plateau (about 15 km<sup>2</sup>) in Namdapha during the winters of 2010–2011 and 2011–2012. The plateau lies at an altitude of 500–700 m and is primarily covered with tropical evergreen forest.

The lowland forests of Namdapha have large numbers of trees of the Lauraceae, Meliaceae and Moraceae families, including the following species which produce fleshy fruits between 21–29 mm in diameter: *Prunus ceylanica*, *Beilschmiedia assamica*, *Phoebe paniculata*, *Phoebe* sp., *Alseodaphne petiolaris*, *Machilus duthiei*, *Aphanamixis* sp., *Dysoxylum* sp. and *Canarium strictum* (Datta 2001). These trees fruit during winter (November to February) and early summer (March to April) (Kanjilal & Bor 1998). The avian frugivores which are known to disperse the seeds of some, if not all, of these species in Namdapha are four species of hornbill, Mountain Imperial Pigeon *Ducula badia*, Great Barbet *Megalaima virens* and Hill Myna *Gracula religiosa* (Viswanathan 2012). Although it is believed Purple Cochoa have been seen previously in Namdapha by birdwatchers, only one report has been published—three birds heard singing/calling at 2,059 m on 18 and 20 December 2008 (Srinivasan *et al.* 2010). At the outset of our project, because of this paucity of records, we had not expected to observe Purple Cochoa in the study area and it had not been identified as a potentially important species in the context of our project on seed dispersal of forest trees.

## Methods

As a part of our research project on seed dispersal by avian frugivores (RN unpubl. data, Viswanathan 2012), we systematically watched fruiting trees over two winter periods, November 2010 to March 2011 and November 2011 to February 2012. During each fruiting tree observation session, we watched frugivore behaviour for up to about four hours—starting between 06h00 and 06h30 and finishing between 10h00 and 10h30—while lying hidden